Abstract #108

The DQO/MQO Process for Comparability in Monitoring: Nitrate as an Example

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Herb Brass is the Analytical Methods Team Leader in the Office of Ground Water and Drinking Water at the USEPA and has over 25 years of experience in managing environmental methods and monitoring programs. He is also Co-Chair of the Methods and Data Comparability Board (MDCB) under whose auspices NEMI is being developed.

Abstract

The DQO/MQO process is a systematic, iterative, and planning process, based on the scientific method (US EPA 1994, 2000). This paper illustrates the DQO/MQO process, using nitrate to provide a focused case study:

1) Development of historical perspective: site-specific data for nitrate are analyzed, using examples from the USGS National Water Information System (NWIS: www.waterdata.usgs.gov/nwis/) and the classic statistical methods of interpretation for comparing data
2) Development of DQOs and MQOs: side-by-side comparisons of DQO/MQO criteria are made for two hypothetical monitoring scenarios, regulatory versus ambient monitoring, as suggested by the historical data for nitrate
3) Method selection: appropriate choices for the compliance and ambient monitoring scenarios are discussed, using nitrate methods from the National Environmental Monitoring Index (NEMI www.nemi.gov), an online compendium of analytical methods for water quality monitoring (Peters et al 2000, Brass et al 2000)

The results of this exercise show how the comparability of methods and data is determined by the choice of DQO/MQOs and corresponding project design. In the examples given, it is somewhat surprising to find that DQO/MQOs and criteria for establishing the comparability of methods and data are more restrictive for the ambient monitoring scenario, than for the compliance monitoring scenario.